

**NUCLEAR REGULATORY COMMISSION**

[Docket No. 030-06839]

**HAWAII AGRICULTURE RESEARCH CENTER, KUNIA SUBSTATION, KUNIA, HAWAII:  
ISSUANCE OF ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT  
IMPACT FOR LICENSE AMENDMENT**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Issuance of Environmental Assessment and Finding of No Significant Impact for License Amendment.

**FOR FURTHER INFORMATION CONTACT:** D. Blair Spitzberg, Ph.D., Chief, Fuel Cycle and Decommissioning Branch, Division of Nuclear Materials Safety, Region IV, U.S. Nuclear Regulatory Commission, 611 Ryan Plaza Drive, Suite 400, Arlington, TX 76011. Telephone: (817) 860-8100; email: *dbs@nrc.gov*.

**SUPPLEMENTARY INFORMATION:**

**I. Introduction**

The U.S. Nuclear Regulatory Commission (NRC) is considering the issuance of an amendment to Material License No. 53-00515-01, as requested by the Hawaii Agriculture Research Center (the Licensee), to authorize release of the Kunia Substation at Kunia, Hawaii, for unrestricted use. The Licensee is authorized to possess radioactive material for conducting tracer studies in plants and soils and for laboratory analysis of samples. On December 2, 2005, the Licensee requested that NRC release the facility for unrestricted use. The Licensee conducted radiological surveys of the facility to demonstrate that the site meets the license termination criteria specified in Subpart E to 10 CFR Part 20 for unrestricted release.

The NRC has prepared an Environmental Assessment (EA) in support of this proposed action in accordance with the requirements of Title 10, Code of Federal Regulations (CFR), Part 51 (10 CFR Part 51). Based on the EA, the NRC has concluded that a Finding of No

Significant Impact (FONSI) is appropriate with respect to the proposed action. The amendment will be issued to the Licensee following the publication of this FONSI and EA in the Federal Register.

## **II. Environmental Assessment**

*Identification of Proposed Action:* The proposed action is to remove the Kunia Substation from License Condition 10 as a location of use. Once the building is removed from the license, the licensee will be free to use the building in any manner without NRC restriction.

*The Need for the Proposed Action:* The licensee no longer conducts licensed activities in this building and desires to release the building for unrestricted use. If the site is properly decommissioned, the licensee would then be in compliance with the Timeliness Rule requirements of 10 CFR 30.36, "Expiration and Termination of Licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas."

*Environmental Impacts of the Proposed Action:* The Kunia Substation is a 4,000 ft<sup>2</sup> (372 m<sup>2</sup>) building that housed a 300 ft<sup>2</sup> (28 m<sup>2</sup>) radiologically restricted area. The licensee used carbon-14, a long-lived low energy beta radiation emitter, at this location between 1975-1998. The licensee possessed a total of 11.5 millicuries (4.26E+8 becquerels) of carbon-14 for experiments. At the conclusion of these experiments, the contaminated soil and plant material were either radiologically sampled and free-released or shipped offsite for disposal.

By letter dated December 2, 2005, the licensee requested amendment of its license to remove Kunia Substation as a location of use. Attached to the request was a report of a final status survey that was conducted during 2005. The survey included scan surveys for fixed/total contamination and swipe sampling for removable contamination. The response and operability of the instrumentation used were verified using carbon-14 check sources. Scan survey results were indistinguishable from background levels. Most swipe sample results were below the

instrument's minimum detectable activity level of 17.3 disintegrations per minute (0.288 becquerels per minute) per swipe sample. The highest sample result was 24 disintegrations per minute per swipe (0.4 becquerels per minute per swipe).

Regulation 10 CFR 20.1402, Radiological Criteria for Unrestricted Use, states in part that a site will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a total effective dose equivalent not to exceed 25 millirems (0.25 mSv) per year to an average member of the critical group. The NRC's NUREG-1757, Volume 1, Revision 1, "Consolidated NMSS Decommissioning Guidance," Table B.1 provides screening values for building surface contamination that are equivalent to 25 millirems (0.25 mSv) per year. The NRC-approved screening value for carbon-14 is  $3.7\text{E}+6$  disintegrations per minute ( $6.18\text{E}+4$  becquerels)/ $100\text{ cm}^2$ . Assuming a loose/removable contamination fraction of 10-percent, the removable surface contamination screening value is  $3.7\text{E}+5$  disintegrations per minute ( $6.18\text{E}+3$  becquerels)/ $100\text{ cm}^2$ . In summary, the licensee's final status survey results were well below the NRC-approved screening values.

A second method to demonstrate compliance with 10 CFR 20.1402 is the use of dose modeling. The licensee conducted dose modeling to estimate potential doses to members of the public from carbon-14 radioactivity in soil. The licensee conservatively assumed that all 11.5 millicuries ( $4.26\text{E}+8$  becquerels) of carbon-14 were dispersed into the area soil resulting in a soil activity of 26 picocuries (57.7 becquerels) per gram. Using Version 6.3 of the RESRAD modeling code with all default parameters, including the default carbon-14 activity of 100 picocuries (222 becquerels) per gram, the model calculated a peak dose of 132 millirems (1.32 mSv) per year. The peak dose occurs at 4.28 years. The licensee discontinued use of carbon-14 at Kunia Substation in 1998. Dose modeling further demonstrates that by the

seventh year (2005), the annual dose drops to below 0.03 millirems ( $3E-4$  mSv) per year. Through dose modeling of potential soil contamination, the licensee conservatively demonstrated that the annual total effective dose equivalent is currently less than the 25-millirem (0.25 mSv) regulatory limit.

The NRC staff reviewed docket file records to identify any radiological or non-radiological hazards that may have impacted the environment. Records indicate that two plots of land located at the Kunia Substation were previously used for land application of radioactive material. In the first instance, an activity of approximately 10 millicuries ( $3.7E+8$  becquerels) of a carbon-14 labeled compound was applied to a 3750 ft<sup>2</sup> (348 m<sup>2</sup>) plot during 1984. This plot was decommissioned, and the NRC released the property from the license in May 1993. In the second instance, on two occasions (1979 and 1982), seeds treated with a carbon-14 compound were planted in a 1600 ft<sup>2</sup> (149 m<sup>2</sup>) plot. This plot was also decommissioned, and the NRC released the property from the license in April 1996. No incidences involving spills or releases of radioactive material were documented to have occurred at Kunia Substation.

*Environmental Impacts of the Alternatives to the Proposed Action:* The licensee seeks NRC approval of the amendment request. The alternatives to the proposed action are: (1) the no-action alternative, or (2) to deny the amendment request and require the licensee to take some alternate action.

1. *No-Action Alternative:* One alternative available to the NRC is to take no action by denying the amendment request. The no-action alternative is not feasible because it conflicts with the NRC's Timeliness Rule (10 CFR 30.36) which requires licensees to decommission their facilities when licensed activities cease.

2. *Environmental Impacts of Alternative 2:* A second alternative is to deny the licensee's request in favor of alternate release criteria as allowed by §20.1403 (criteria for

restricted use) or §20.1404 (alternate release criteria). However, the NRC's analysis of the final status survey data confirmed that the survey results and dose modeling meet the §20.1402 radiological criteria for unrestricted use, which is the preferred alternative.

Accordingly, the NRC has determined that the second alternative is not reasonable, and this alternative action is eliminated from further consideration.

*Conclusion:* Based on its review, the NRC staff concludes that the environmental impacts associated with the proposed action do not warrant denial of the license amendment request. The staff finds that the proposed action will result in no significant environmental impacts. The staff has determined that approval of the license amendment is the appropriate alternative for selection.

*Agencies and Persons Contacted:* The NRC staff did not consult with the Hawaii State Historic Preservation Officer or the local U.S. Fish & Wildlife Service because licensed activities being considered by this EA occurred only within the confines of the Kunia Substation. Other than the two land applications that were previously reviewed and released by the NRC, no other use or release of radioactive material outside of the building was identified. Accordingly, there were no identified impacts to the cultural resources, endangered species, or critical habitats. The Hawaii Department of Health was consulted about this EA. The State informed the NRC by letter dated May 30, 2006, that it had no objections to the draft EA or to the use of the EA for NRC decisionmaking.

### **III. Finding of No Significant Impact**

The NRC staff has prepared an EA in support of the proposed license amendment to release Kunia Substation for unrestricted use. On the basis of this EA, NRC has concluded that no significant environmental impacts will result from the proposed action, and the license

amendment does not warrant the preparation of an environmental impact statement.

Accordingly, it has been determined that a Finding of No Significant Impact is appropriate.

#### **IV. Further Information**

Documents related to this action, including the application for amendment and supporting documentation, are available electronically at the NRC's Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html>. From this site, you can access the NRC's Agencywide Document Access and Management System (ADAMS), which provides text and image files of NRC's public documents. The ADAMS accession numbers for the documents related to this notice are:

1. Whalen, Stephanie, Hawaii Agriculture Research Center, Response to NRC Information Notice 96-47, October 31, 1996 (ML060890606).
2. NRC, "Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities," NUREG-1496, July 1997 (ML042310492, ML042320379, and ML042330385).
3. NRC, "Consolidated NMSS Decommissioning Guidance," NUREG-1757, Volume 1, Revision 1, September 2003 (ML053260027).
4. Whalen, Stephanie A., Hawaii Agriculture Research Center, License Amendment Request, December 2, 2005 (ML060120252).
5. Takata, Russell, S., Response to Request for Comments on Draft Environmental Assessment for Decommissioning of Kunia Substation at Hawaii Agriculture Research Center, May 30, 2006 (ML061630274).

If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC Public Document Room (PDR) Reference staff at 1-800-397-4209, 301-415-4737, or by email to [pdr@nrc.gov](mailto:pdr@nrc.gov).

These documents may also be viewed electronically on the public computers located at the NRC's PDR, O 1 F21, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852.

The PDR reproduction contractor will copy documents for a fee.

Dated at Arlington, Texas this 16<sup>th</sup> day of June 2006.

For the Nuclear Regulatory Commission.

A handwritten signature in black ink, appearing to read "D. Blair Spitzberg", is written over a solid horizontal line.

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